

A large vacuole, or a group of contributory globules, freed into the water by ripping open a cell under slight pressure, retain their identity in this medium for some time. A quick upward thrust of a blunt needle against a large vacuole apparently causes its rupture into the surrounding endoplasm, for an increase in fluidity is observed in this area. This would imply the miscibility of vacuolar fluid and endoplasm.

The contractile vacuoles of *Paramecium caudatum* become dilated on the addition of Grubler's Alizarin blue to the culture. The distended vacuoles together with their feeders become set, gradually taking on a vivid blue color. This stain is specific for the vacuolar walls, and, although it appears long before ciliary action ceases, should be classified as a sub-mortem rather than a vital stain. These stained and distended vacuoles do not collapse when removed from the animal but retain their shape and may be manipulated and dissected with microneedles.

The complete paper will appear in the *Journal of Experimental Zoology*.

234 (2194)

Notes on the dissection of *amoeba verrucosa*.

By RUTH B. HOWLAND (by invitation).

[*From Cornell University Medical School, New York City.*]

The specific structure and characteristic properties of the pellicle of *Amoeba verrucosa* may be demonstrated in the living animals by means of microdissection and injection. A high degree of resistance to mechanical pressure is exhibited by the pellicle when subjected to compression. Perforation of the pellicle without indentation of this layer can be effected only with needles having extremely fine points. Withdrawal of a needle after penetration carries the pellicle out into a long cone-shaped process, loss of endoplasm being prevented by the rapid formation of a restricting endoplasmic film at the base of this cone. Distortion of the pellicle due to compression or other injury persists for some time before the membrane resumes its

normal condition. The tough but extensile nature of the pellicle may be further demonstrated by inflating the cell with distilled water injected through a micropipette. From a cell ruptured under pressure the entire pellicle may be removed. In every case recorded the nucleus came away with the pellicle. Injection of various solutions usually causes an immediate inflation of the Amoeba, the fluid collecting in an area beneath the pellicle, while the endoplasm contracts into an irregular mass containing the nucleus.

235 (2195)

The reaction of the endocrine system of the rabbit to tumor inoculation and the relation of this reaction to malignancy.

By WADE H. BROWN and LOUISE PEARCE.

[From the Laboratories of the Rockefeller Institute for Medical Research, New York, N. Y.]

Within recent years, a great deal of evidence has been accumulated from both clinical and laboratory sources which has tended to show that some kind of connection exists between the occurrence and growth of tumors and the system of organs regulating animal economy. For the most part, the evidence bearing upon this problem has been circumstantial. In a few instances a definite relationship appears to have been established as in the case of the experiments reported by Loeb¹ concerning the effects of castration on the incidence of mammary tumors in mice and those of Rohdenburg, Bullock, and Johnson² on the effects of operative removal of various organs upon the growth of transplanted tumors and the immunity of tumor animals. There are also therapeutic observations on the use of thyroid and of thymic products alone or combined with castration³ which might be regarded as equally suggestive were it not for the fact that similar results have been obtained by the use of a variety of means.⁴

¹ Loeb, L., *J. Med. Res.*, 1919, xxxv, 447.

² Rohdenburg, G. L., Bullock, F. D., and Johnson, P. F., in *Studies in Cancer (George Crocker Research Fund)*, 1913, iii, 87.

³ Beatson, G. T., *Glasgow Med. J.*, 1913, n. s. lxxvi, 81, and earlier reports.

⁴ A more recent article on this subject has been published by Enge in the *Ztschr. f. Krebsforsch.*, 1923, xix, 339.